I. INTRODUCTION

The cut flower industry is expanding world wide and Egypt is actively seeking to generate new market for its unique geographical location near the high volume markets of Europe.

The postharvest life of flowers is strongly dependent on production practices as well as proper postharvest treatments, cut flowers should be able to withstand periods of storage that allow for extended sales periods and facilitate long distance shipping.

Growers are heavily reliant on technologies that maintain the quality of postharvest produce during transportation.

Egypt must therefore take a leading role in the development and marketing of technologies that provide Egyptian producers a competitive advantage over their foreign counterparts.

The tuberose (*polianthes tuberose* L.) family Agavaceae (Amaryllidaceae), it is a very popular cut flower of Egypt, perennial herb native to Mexico with usually elongate bulb like bases, leaves to 1 1/2 feet long, 1/2 in-wide, stem leaves clasping and successively smaller inflorescence a terminal raceme or spike, flowers waxy-white florets, very fragrant, 2 1/2 in-long, mostly in pairs, fruit a capsule. A double-flowered from is most frequently grown, **(Bailey, 1976)**

Strelitzia reginae is indigenous to South Africa and commonly known as bird of paradise, the genus of Strelitzia

belongs to Strelitziaceae family **Bailey (1976)** includes about 5 species (reginae, augusta, nicoli, parvifolia and kewensis).

Strelitzia reginae plant is a very popular orange purple flowered species. It grows up to more than 90 cm high. Roots are large ,strong growing rhizomes, leaf stalk is about 45 cm long, leaf blade about the same length, the leaves radiate out fan .The flowers are orange and purple and very brilliant, emerging from the purplish spathes on a stem about 90cm long.

Treatment of flowering plants with plant growth regulators (Gibberellins and cytokinins) are found to be beneficial in delaying senescence processes but the response to Gibberellins and cytokinins application varies depending on cultivar, stage of flower development and type of Gibberellins and cytokinins. The present study was conducted in view of exploring the effect of pretreatment spray of both growth regulators on plant at beginning of flowering stage and investigating the influence of this ingredient on postharvest life of cut tuberose and strelitzia flowers.

Cold storage of cut flowers after harvesting is essential process for several species which should be exposed to low temperature during the different handling processes (immediate after cutting, during grading, storage and transportation).Storage of cut flowers at the optimum temperatures, in addition to high percentage of relative humidity in the storage condition, delays senescence and maintains the quality.

The preservatives materials which used as pulsing or holding solutions seemed to prolong flower longevity. In this

respect, some chemical preservatives, i.e. kinetin (kin), Benzyl adenine (BA), sucrose (s), and silver thiosulphate (STS) are using as pulsing solutions, sucrose while sucrose (s), sucrose + citric acid (S+CA), sucrose + 8-hydroxy quinoline sulphate (S + 8-HQS) and sucrose + 8-hyroxy quinoline sulphate + citric acid (S + 8-HQS + CA) are using as holding solutions for prolonging vase life span.

Sucrose inhibited ethylene synthesis as well as promoting flower bud opening and inhibiting flower senescence.

Also, **paulin (1986)** summarized the effect of sucrose on cut flower as follows: (1) sugars increased the vase life which associated with a constant fresh weight and a regular increase in dry matter. (2) when cut flowers were supplied with sugar solution, the soluble protein content increased in the petals. Glucose also favored the synthesis of amides. To prevent accumulation of ammonia, the flower developed a process of detoxification by producing amides, and also preserved various enzymatic activities. (3) The mobile form of carbohydrates by which energy sources were moved from the point of synthesis to the point of utilization. (4) Maintenance of osmotic pressure. (5) The delay of ethylene outburst. (6) The inhibition of phospholipids break down, thus, maintaining membranous integrity and. (7) protected the structure of mitochondria.

kinetin (kin) and Benzyl adenine (BA) delayed senescence by its effect on ethylene synthesis processes in the tissue of flowers and decreases the ethylene production within the carnation flowers **(Bosse and van staden, 1989)** and

decreasing of protein hydrolytic enzymes activity lipooxygenase **(Leshem et. al. 1979)**.

Silver thiosulphate (STS) was most effective as a bactericide and an inhibitor to ethylene production and action **(Nowak and Runduicki, 1990)**. However, STS inhibited the action of ethylene and leading to a decrease in lipoxygenase (LOX) activity as well as served as an antibacterial component.

Moreover (CA) improved water balance and reduced stem plugging of bird of paradise cut flowers **(Halevy et al.,1978)**

Furthermore, (8 HQS) salts delayed senescence and eliminated bacterial growth which was the principal reason for reducing water uptake. **Sacalis (1993)** reported that. The presence of sucrose with addition of germicide such as (8-HQS) is necessary to inhibit microbial growth. **Reid et. al. (2001)** reported that, holding solution treatment (20% sucrose +250 ppm 8-HQS) significantly improved the vase life and opening of cut tuberose flower spikes.

Generally, consulting the available literatures, there was little information regarding the effects of interaction treatments used between pulsing and holding solution on tuberose and Bird of paradise cut flower stalks longevity, post harvest and water relation characters as well as some chemical constituents.

Therefore, the present work aimed to study:

(1) The effect of some growth regulators (Gibberellic acid, Benzyl adenine and Kinetin), and storage periods each alone, as well as their interaction on the postharvest characters, water relation and some chemical constituents in order to prolong flower longevity and inhibiting flower senescence.

(2) The effects of some preservatives materials treatments as pulsing or holding solutions, each alone as well as their interaction on the postharvest characters, water relation and some chemical constituents in order to improve the vase life and shelf life of both tuberose and strelitzia cut flower stalks.